Allied Telesis

Guide to iMG

The intelligent Multiservice Gateway

LEADING EVOLUTION FROM COPPER TO FIBER

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Architecting the Broadband Landscape Revolution

The massive global growth in the availability of broadband services and concurrent drop in cost for high-bandwidth to the home and Small office/Home office (SoHo) has made the concept of the networked house an affordable reality today.

The market for bandwidth has matured; it has become ever-more demand driven with consumers expecting to be able to obtain advanced services and applications. These services enable high-speed Internet access, interactive television entertainment, home-working, online learning, e-mail, online-gaming, Internet shopping, online banking and stock/share-trading to name only a few of the services now available via broadband – **all from the consumer's home**.

Service providers delivering 'vanilla' broadband products in this commoditized market are struggling to find ways to add value to their services in order to survive.

Consumers often already subscribe to or use these differentiated services, that are delivered to their homes over a mixture of any of voice-grade copper, fiber or 'cable TV' but **pay different providers** for the delivery of each of these services.

To add value to their offering, boost revenues and subsequently ensure survival in this market, service providers must find ways to integrate these differentiated services and to deliver them, using existing 'pipes' to consumer homes. This integration slows customer churn rates and creates a more attractive bundle package for attracting new customers.

Preparing the IP Triple Play Environment

The physical delivery of these differentiated services over a copper and/or fiber infrastructure necessitates two new devices; an aggregator in the local exchange/central office and a next-generation Customer Premise Equipment (CPE) broadband device. These devices, working in parallel must be capable of

- *Supporting high quality convergence of voice, video and data traffic over existing copper or new fiber deployments*
- *The distribution of broadband-enabled services by connecting to a number of devices in the home or office that operate on diverse data protocol platforms*

In addition they must also

- *Be easy to provision, support and to reconfigure remotely when new subscription services are taken up*
- *Be cost-effective; minimizing capex and opex for service providers upgrading to a Triple Play-ready platform*

Allied Telesis International is a global IP and Ethernet equipment manufacturer, established in 1987 with core competence in fiber, IP and Ethernet technology device design for the LAN, MAN and WAN. In response to the above requirements and leveraging its core competencies, Allied Telesis has developed a market-leading Triple Play-ready solution for

- *The exchange service switch – we call this family of products our **integrated Multiservice Access Platform (iMAP)***
- *The terminus of the line (CPE) – we call this our **intelligent Multiservice Gateway (iMG)**†*
- *Complete provisioning and management of these elements is accomplished by the **AlliedView™ Network Management Software (NMS)**, a vital piece of the solution that enables the remote provisioning, monitoring and management from the service provider's Network Operations Center (NOC)*

These three elements are key building blocks for Allied Telesis' IP Triple Play solution for operators and service providers of any size.

† iMG formerly referred to as the 'Residential Gateway' or 'RG'.

The iMG 600 Family

This guide focusses on the CPE element of the Allied Telesis IP Triple Play solution. For details regarding the iMAP, please refer to the Allied Telesis 'Guide to iMAP'.

Allied Telesis has been offering intelligent Multiservice Gateways for advanced broadband service delivery since 2001. In recognition of the fact that these gateways are typically for deployment in the home, they were originally named as the 'Residential Gateway'. These devices are now much more sophisticated than a broadband modem and so we now label them more appropriately, the intelligent Multiservice Gateway, or iMG.

In the early phase of broadband adoption the bandwidth available made the integration of data and voice (VoIP) a possibility. Allied Telesis launched the RG100 and 200 series to address these early demands. As bandwidth capacity has increased and service providers started to look to the deployment of IPTV, IP telephony and data delivery to boost revenues and compete in an increasingly commoditized market, a new breed of residential gateway was needed – the iMG 600 series.

The Allied Telesis iMG 600 family combines support of IP multicasting and QoS capabilities with the bandwidth capacity of fiber or copper to simultaneously deliver multiple high quality video streams, IP telephony and high-speed Internet access to subscribers.

The iMG 600 is available with both Ethernet or ADSL/ADSL2+ uplink interfaces and is commercially optimized to help create the business case for operators and service providers.

iMG 600 series - fiber iMG

iMG 600 series - copper iMG

The common characteristics of these gateway devices are summarized below.

Increased Services - Increased Revenue

With the ability to deliver high-bandwidth data and high quality streaming video without affecting Voice over IP applications on adjacent ports, the iMG 600 series pave the way for new revenue-generating services.

Real Time Applications Optimization

Quality of Service

End-to-end Quality of Service is vital for the delivery of time-sensitive services such as voice and video. Traffic associated with these services requires the highest levels of priority and protection over other Internet traffic, such as Web and e-mail. This is provided within the iMG 600 series through ISO Layer 2 and 3 prioritization techniques including Type of Service (ToS) as well as priority tagging with IEEE 802.1p.

Optimized for IP Video Streaming

The iMG 600 family of gateways offer unique features to optimize the delivery of video content to customers, namely VLAN, IGMP snooping and proxying. The iMG 600 series 'snoops' IGMP packets in-transit allowing simultaneous delivery of different multicast transmissions, e.g. different movies or TV channels. This combination of features results in high quality, high-bandwidth multiple video streaming without impacting Internet browsing or IP telephony. The advanced support for IGMP technology ensures traffic optimization and the fast channel change that users expect from video services. MPEG video service management and diagnosis is possible using troubleshooting techniques. Furthermore, video quality can be monitored using the unique MPEG stream monitoring tool.

iMG 600 series - environmentally hardened fiber iMG

IP Telephony

The iMG 600 series offers a choice of POTS or ISDN BRI interfaces leveraging Voice over IP (VoIP) protocols such as H.323, SIP and MGCP. This wide protocol support provides maximum flexibility for service providers deploying VoIP today allowing them to leverage existing infrastructure investments and to benefit from a wide choice of softswitch solutions. The iMG 600 series allows the connection of modems and faxes to voice interfaces for other business applications in SoHo environments. Class 5 services are supported and VoIP interoperability has been established with major softswitch vendors.

Data Delivery

Differentiated Bandwidth Internet Services

The iMG 600 series' extensive support for per port rate-limiting enables service providers to deliver tiered data services catering for the wide spectrum of end-customer profiles. This feature allows the service provider to offer differentiated services to each customer and to protect its network from malicious packet attacks.

Ensure Security

Advanced security features such as integral Stateful Inspection Firewall with NAT are included. Denial of Service attack blocking and port-rate limiting combine to protect both customers and providers from packet flooding or data theft. Audit tracking and user authentication protect against theft.

Each VLAN can be configured to be external, internal or DMZ. With the virtual server features, end-customers can host their own Web or e-mail servers behind the firewall and simply appear as though they are on the public interface. The iMG 600 series NAT supports the most popular protocols and applications including NetMeeting (H.323 and SIP), IPSec and PPPTP.

Provisioning and Management for Reduced Total Cost of Ownership

Easy to Deploy and Manage

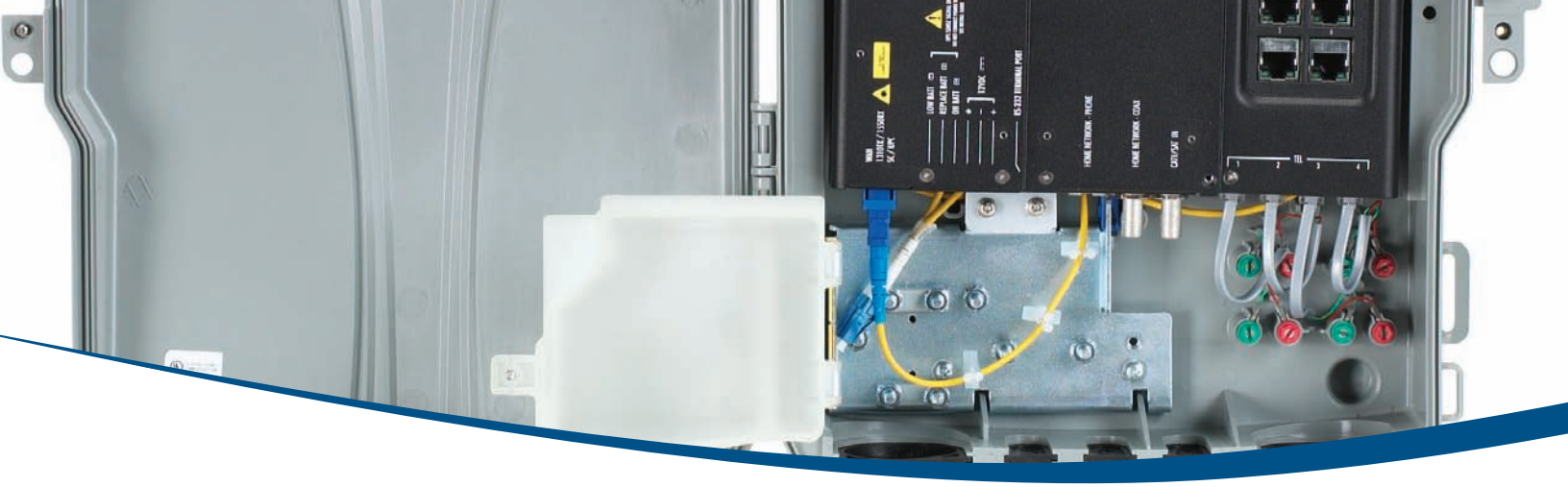
Fiber-To-The-Home with the iMG 600 series has never been easier. For installers and builders, a complete fiber splicing kit with a passive faceplate for hiding the fiber termination is provided to allow for easy installation, maintenance and replacement using plug-and-play optical connections. User intervention is limited to simply sliding-in the gateway in the already installed slot containing the terminated fiber. Where an ADSL or RJ-45 interface is required, the iMG 600 series is available with these built-in interfaces, eliminating need for external modem or media conversion.

Zero Touch Configuration with the Allied*View* NMS

All the members of the iMG 600 family can be provisioned and managed remotely through Allied Telesis' state-of-the-art Allied*View* NMS platform. The iMG 600 series is designed for large deployments without the need for truck-rolls or man-in-a-van operation, bringing substantial reductions in CAPEX and OPEX.

Scalable Deployment Architecture

Allied*View* NMS provides intelligent and automatic configuration of remote iMG units. The Allied*View* NMS provides secure authentication and registration of iMG devices, resilience through distributed server architecture and built-in scalability for very large networks. Its SOAP/XML-based northbound interface enables seamless integration with service providers' existing OSS platforms.



Summary of Features and Benefits for iMG 600 Multiservice Gateway

Main Functionality and System Architecture	
Feature	**Benefit**
Provide a single device at the customer premise enabling delivery of Triple Play applications within the home or small office	- Minimizes operator footprint at customer premises for better reliability - Lower CAPEX and OPEX
IP and Ethernet-based architecture	- More efficient for cost-effective delivery of advanced broadband services such as IP Triple Play (IPTV, VoIP and Internet) - Lower CAPEX and OPEX
IP network uplink connections supported for multiple technologies – fiber Ethernet, copper Ethernet and ADSL	- High throughput - Future-proof and flexible
Possibility to offer a combination of native Broadcast Cable TV (AT-iMG616SRF+) as well as IPTV, Internet, VoIP and VoD to subscribers from one single platform	- Enables cable TV operators to offer services off-net and over other operators networks using FTTH (AT-iMG616SRF+) - Address multiple market segments and needs for more revenue - Revenue diversification eliminates business dependency on market and/or service
IP Triple Play Support	
Video-optimized with high bandwidth combined with features for deploying and securing services	- Advanced video services (e.g. IPTV, Video-on-Demand) - Additional revenue from value-added service
Video services security	- Prevent viewing of unsubscribed channels – protecting revenues and content - Prevent disruption of services through DoS (eg. virus attack) - Service separation and protection
Both analogue and digital TV (AT-iMG616SRF+) as well as IP video-over-fiber service supported	- Use infrastructure (content, HFC network, coax connection) that is already available - Additional simultaneous channels to customers resulting in increased revenue
IP Telephony	
Deploy IP telephony service over ADSL or FTTH from an intelligent Multiservice Gateway (iMG) located in the customers premise	- Supports the migration to IP as the network protocol for the future for voice, video and data communication - POTS and ISDN lines are converted to VoIP connections inside iMG system for transport across a packet network - Telephony service can be delivered over competitor's access network
Availability	
Battery backup	- Maintain service uptime for eight consecutive hours - Enables operators and System Integrators (SI) to meet Service Level Agreement (SLA) requirements in terms of reliability - Complies with regulation concerning telephony service availability during power failure
Provisioning and Serviceability	
Supports centralized mass deployment with Allied*View* NMS	- Centrally provision, manage and maintain subscribers' service profiles to iMGs - Eliminate need for truck-rolls or man-in-a-van operation reducing CAPEX and OPEX - Seamlessly integrate with operators Operations Support Systems (OSS) through XML/SOAP northbound interface
Service specific management and monitoring	- Troubleshooting – video quality at customer premise (MPEG stream analyzer) - Extensive support for debugging services - In/out-band management - SNMP and Telnet management interfaces - Enables operators and System Integrators to meet SLA requirements in terms of performance monitoring and reporting
Physical Structure	
Compact size, wall-mount form factor. Fiber version comprises of passive and active units	- Minimizes operator's footprint at customer premises - Fiber splicing and termination can be done by builder/installer for FTTH - Gateway is only sent to user when subscribed to service - Enable low-cost initial roll-out/market entry and investment
Interoperability	
Class 5 services	- Uses same VoIP stack which has been in field deployments since 2001 with on-going interoperability certification with major softswitch vendors - Interoperable with Metaswitch, CopperCom, Shericall, Broadsoft softswitches
End-to-End solution from Allied Telesis	- Allied Telesis provides a complete set of xDSL and FTTx access solutions in the form of integrated Multiservice Access Platform (iMAP), fiber Layer 2/3 switches and media converters to provide the broadband link in the access and edge of the network
End-to-End Quality of Service	
Multi-layer application-aware switching	- Intelligently discriminate between different types of traffic (voice, video, data) - Prioritize time-sensitive applications or services such as video and voice over e-mail and Web traffic - ensures end-customer satisfaction - Efficient resource utilization - Assurance that application performance or availability will not be impacted by changes in service subscription

Product Matrix Table

The information in this table provides a guide to the broad feature sets contained within the different families of the iMG 600 series. For specific information regarding the functionality of a particular model, please refer to the ordering information in this guide and to the relevant datasheets.

Uplink/ WAN Connection	ADSL				Ethernet/Fiber				
AT-iMG Family Name	iMG624z	iMG634z	iMG664z	iBG910z	iMG606xx	iMG616xx	iMG646xx	iMG646MOD	iBG915FX
Data Port Configurations									
WAN									
10/100TX	Y	Y	Y	-	-	-	-	-	-
100LX dual fiber, single-mode	n/a				-	Y	-	-	-
SFP module					-	-	-	-	Y
100BX single-fiber, single-mode					Y	Y	Y	Y	-
1Gpbs PX20, single-fiber, single-mode, GEPON					-	-	-	Y	-
ADSL/ADSL2+ annex A	Y	Y	Y	Y	n/a			-	-
ADSL/ADSL2+ annex B	Y	Y	Y	Y				-	-
VoIP FXO for baseband telephony failover	-	Y iMG634W	-	-		-		-	-
LAN									
10/100TX	4	4	4	8	6	6	6	6	8
T1/E1	-	-	-	-	-	-	-	2	-
Wireless, IEEE 802.11g	-	Y iMG634W	Y iMG664W	-	-	-	-	-	-
HPNAv3 Ethernet over coax distribution	-	-	-	-	-	-	-	Y	-
T1/E1 circuit emulation	-	-	-	-	-	-	-	Y	-
Telephony									
VoIP FXS	-	2	2	4	-	2	4	4	5
ISDN BRI	-	-	1	1	-	-	-	-	-
Additional Ports									
RF optical to electrical port for CATV interface	-	-	-	-	-	Y iMG616RF iMG616SRF+	-	-	-
SIM card slot	-	Y iMG634W	-	-	-	-	-	-	-

The iMG 600 product family have a base model number which details the fixed VoIP, ISDN, and 10/100TX data ports, and suffixes to indicate the uplink type and wireless or RF support. AT-iMGabc**xx**.

For ADSL Models: iMGabc**yz** where **y** indicates IEEE 802.11bg wireless support, and **z** indicates ADSL annex supported.

For Ethernet Models: iMGabc**xx**, where outdoor iMG units are noted with a -ON (AT-iMGabc**xx**-ON)

y =
Blank for no IEEE 802.11bg support
W for IEEE 802.11bg support

z =
A for ADSL annex A
B for ADSL annex B

xx =
TX for 10/100TX WAN
LH for single-mode fiber
BD for bi-directional single-mode fiber
PX for GEPON single-mode fiber
RF for bi-directional single-mode fiber plus RF CATV interface

* Please contact your local Allied Telesis representative office for availability.

Uplink/ WAN Connection	ADSL				Ethernet/Fiber				
AT-iMG Family Name	iMG624z	iMG634z	iMG664z	iBG910z	iMG606xx	iMG616xx	iMG646xx	iMG646MOD	iBG915FX
Features									
Layer 2 and 3 QoS	Double QoS queue on each port, DiffServ, IEEE 802.1p prioritization								
IGMP v1/v2 multicast, proxy and snooping	Y								
Advanced security features	Stateful Inspection Firewall, PAP/CHAP								
PPPoE protocol support	Y								
PPPoA protocol support	Y				n/a				
IPoA protocol support	Y								
Tag-based VLAN support (IEEE 802.1Q)	Up to 16 VLANs								
Port mirroring	Ingress and egress traffic								
Layer 3 routing	Up to 16 IP addresses, RIPv2, static and dynamic IP assignment								
VoIP protocol support	n/a	MGCP/NCS 1.0, SIP, H.323			n/a	MGCP/NCS 1.0, SIP, H.323			
Network Address Translation (NAT)	Y								
Virtual server / DMZ (Flexible NAT operation)	Y								
Management interfaces	Allied*View* NMS, SNMP, Web GUI, Telnet CLI								
DHCP server, client, relay	Y								
T.38 FAX operation	n/a	MGCP/NCS 1.0, SIP, H.323			n/a	MGCP/NCS 1.0, SIP, H.323			
Programmable rate limiting	Ingress/egress, high/low priority								
ATM PVC supported	Up to 8 PVCs				n/a				
ATM virtual circuit to VLAN mapping	Y								
Switching AC power adapter	Y			n/a	Y		Y indoor only iMG646BD	-	-
Interal power supply	-			Y	-				Y
Optional APC indoor battery backup	Y			N	Y				
Environmental hardening for outdoor deployment	-						Y iMG646BD-ON iMG646PX-ON	Y	-
Product Models	iMG624A iMG624B	iMG634A iMG634B iMG634WA iMG634WB	iMG664A iMG664B iMG664WA iMG664WB	iBG910A iBG910B	iMG606BD	iMG616BD iMG616LH iMG616RF iMG616SRF+	iMG646BD iMG646BD-ON iMG646PX-ON	iMG646MOD Packages - see product datasheet	iBG915FX

The iMG 600 product family have a base model number which details the fixed VoIP, ISDN, and 10/100TX data ports, and suffixes to indicate the uplink type and wireless or RF support. AT-iMGabc**xx**.

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A for ADSL annex A
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xx =
TX for 10/100TX WAN
LH for single-mode fiber
BD for bi-directional single-mode fiber
PX for GEPON single-mode fiber
RF for bi-directional single-mode fiber plus RF CATV interface

iMG 600 Applications Overview

How to Roll-out a IP Triple Play Solution with Allied Telesis' iMG

Before Going to Market

Operators need to establish the infrastructure mix for delivery of the proposed IP Triple Play services to reach customer premises.

Operator Business Model

- *An incumbent has the flexibility to leverage investment in existing infrastructure and deploy new revenue-generating services.*
- *A competitive carrier or an emerging operator should consider a Broadband bitstream wholesale service from the incumbent with QoS, leverage de-regulation and engage in Local Loop Unbundling to gain access to copper loops or build a new access network based on fiber.*
- *Cable TV companies should consider expanding their customer base by either Local Loop Unbundling (LLU), partnering with a Fiber-To-The-Home (FTTH) ISPs or building their own FTTH in greenfield sites.*

For FTTH deployments, operators can terminate the fiber at each customer premise with the Allied Telesis custom faceplate – a mounting ready to receive an iMG.

Operators must decide which services are to be options for potential customers and establish partnerships for any additional service delivery – for example, IPTV content, broadband Internet bandwidth and IP telephony.

Service providers need to generate software configurations for the iMG that match the tiers of services and service packages in the offering to the customer base articulated by the marketing team. To streamline the deployment process and eliminate truck-rolls and man-in-a-van operations, operators should implement Allied Telesis' Allied*View* NMS. Should the operator be using the iMAP 9000 series as the access aggregator for the physical infrastructure, the Allied*View* Network Management System (NMS) can also complement the management architecture end-to-end.

Customer Order Provisioning

Simply send out the appropriate iMG to the customer (ADSL, fiber or Cat5 twisted pair) with instructions on how to connect to the faceplate or the cable coming into the home. The appropriate configuration matching customer profile is automatically pushed out to the newly connected iMG using the Allied*View* NMS. The happy customer is now connected, with all his/her services turned on from one box, in a short space of time, with little technical knowledge required, other than plugging cables into the iMG.

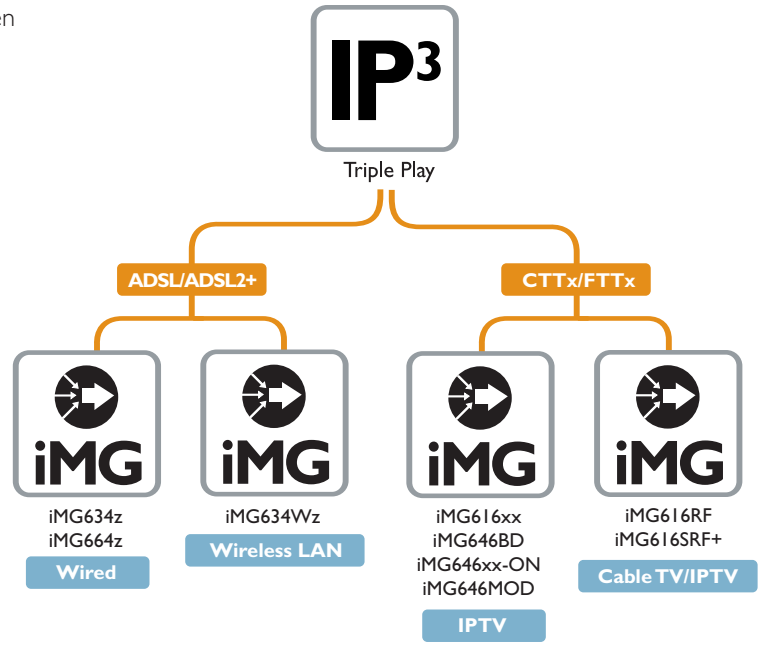
IP Triple Play Delivery – Matching Infrastructure with iMG

A service provider bringing a IP Triple Play offering to the market must be able to connect these services to the consumer and potentially, to each of the devices in their home. The choice of this device providing the bridge between the customer and provider depends on whether fiber or copper is used in the 'last mile' and which multimedia devices the customer has on the other side of the link.

The schematic shows which iMG 600 suits a given set of requirements for IP Triple Play delivery.

Key:
xx =
TX for 10/100TX
LH for single-mode fiber
BD for bi-directional single-mode fiber
RF for bi-directional single-mode fiber plus RF CATV interface

z =
A for ADSL annex A
B for ADSL annex B



IP Telephony over Broadband

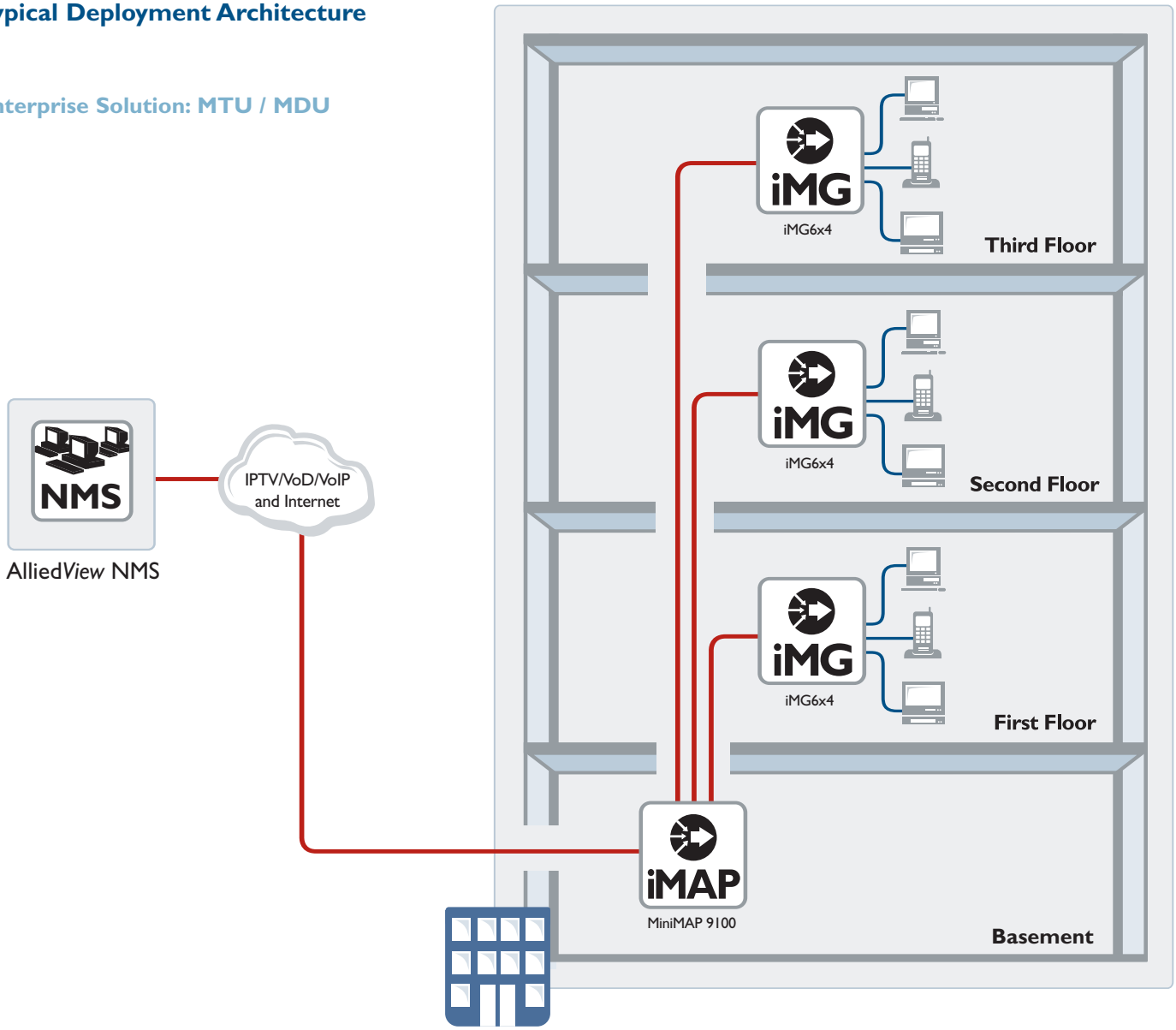
The more sophisticated consumer already has a fast broadband service to their home. This consumer has heard of IP telephony, or VoIP and recognizes that if they have the right CPE terminating their connection they can get much lower telephony cost than they get from their current operator.

The addition of an AT-iMG634zy (where z = A or B and y = 0 or W) to terminate their broadband connection and provide POTS or BRI interfaces based on VoIP, gives this customer access to low-cost IP telephony using standard phones.

As a VoIP or IP telephony provider, you transfer the money they once used to pay to the fixed line operator to your revenue stream. Having gained their telephony, you are then able to offer them advanced services (for example, Triple Play) as well – adding more and more services to your revenue streams.

Typical Deployment Architecture

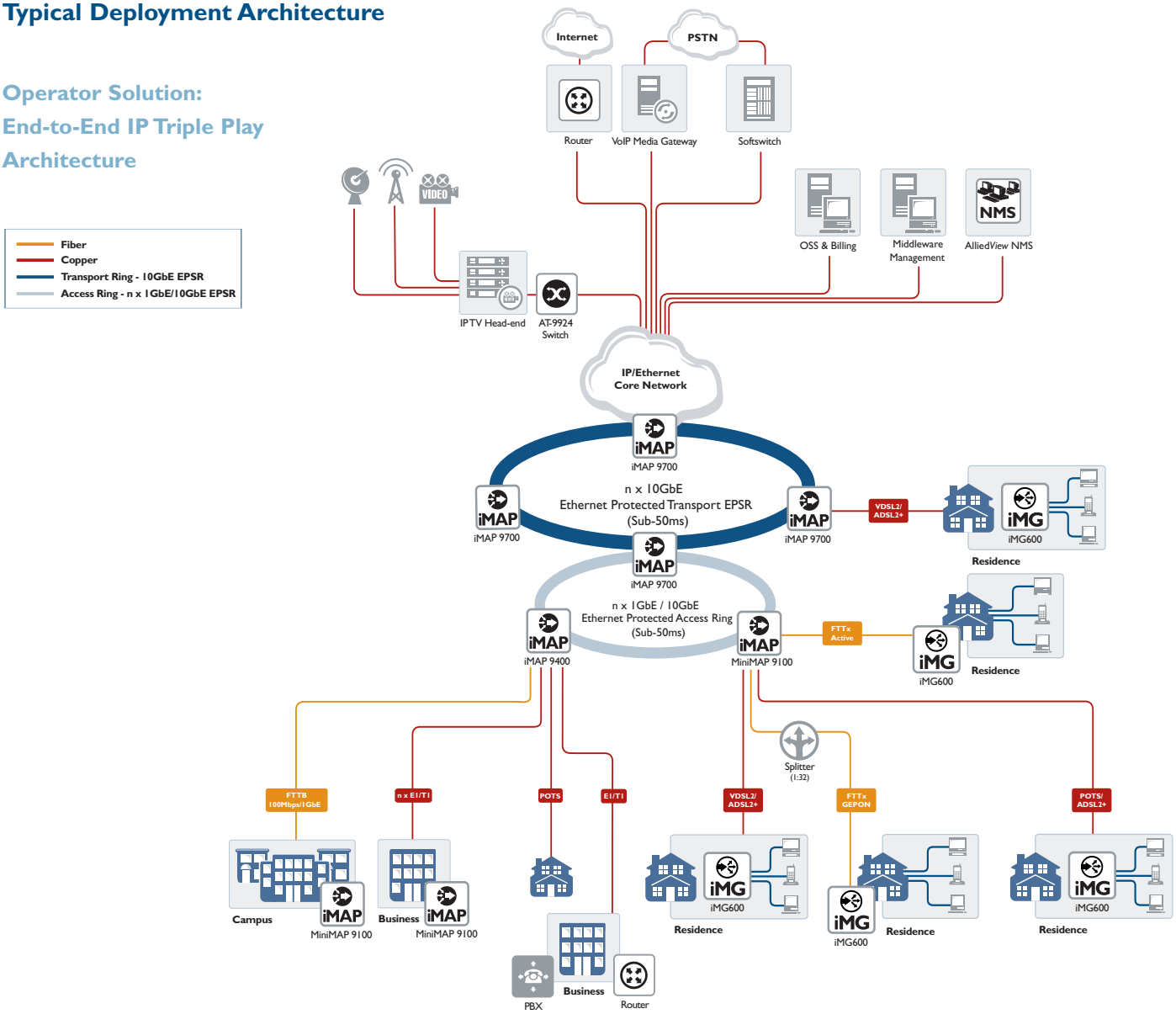
Enterprise Solution: MTU / MDU



Where a PBX already supplies PSTN access to rooms in an MTU/MDU, the addition of an iMAP, baseband central office splitter and iMG 600 series CPE devices enables IP Triple Play services to be delivered to all rooms.

Typical Deployment Architecture

Operator Solution: End-to-End IP Triple Play Architecture



A resilient ring of iMAP 9700 platforms running EPSR distributes IP Triple Play services over multiple protocols such as Ethernet and ADSL. This platform supports existing or new copper or fiber infrastructures to businesses and homes where an iMG 600 series distributes the high-value multiple services to domestic communication and entertainment devices.

iMG 600 Series Ordering Information

The iMG 600 Series Can be Split into Three WAN Uplink Categories

Ethernet Uplink in Either Copper or Fiber

AT-iMG616, AT-iMG606BD, AT-iMG646BD

iMG 600 indoor fiber series is installed on a wall-mounted passive 'faceplate' (AT-iMG001 is a 10-pack of faceplates) which terminates the incoming fiber.

AT-iMG626MOD, AT-iMG646BD-ON, AT-iMG646MOD

Outdoor iMG is sold as a bundle with an outdoor hardened enclosure.

ADSL Uplink, Both Annex A and B Support

AT-iMG624A/B, AT-iMG634A/B, AT-iMG634W A/B, AT-iMG664A/B, AT-iMG664W A/B

GEPON Fiber Uplink

AT-iMG646PX-ON, AT-iMG646MOD

Outdoor iMG is sold as a bundle with an outdoor hardened enclosure.

Ethernet Fiber iMG / iBG			
Model	**LAN**	**Telephony**	**WAN**
AT-iMG616LH	6 x 10/100TX	2 x VoIP FXS	1 x 100FX (SC SM)
AT-iMG616BD	6 x 10/100TX	2 x VoIP FXS	1 x 100FX (SC BX)
AT-iMG616RF	6 x 10/100TX and 1 x RF	2 x VoIP FXS	1 x 100FX (SC BX), 1 x Optical RF (SC/APC)
AT-iMG616SRF+	6 x 10/100TX and 1 x RF	2 x VoIP FXS	1 x 100FX (SC BX) 1 x enhanced power optical RF (SC/APC)
AT-iMG626MOD	6 x 10/100TX 1 x HPNAv3 coax F connector 2 x T1/E1	2 x VoIP FXS	1 x 100FX (SC BX) 1 x GEPON (SC PX)
AT-iMG646BD/BD-ON	6 x 10/100TX	4 x VoIP FXS	1 x 100FX (SC BX)
AT-iMG646PX-ON	6 x 10/100TX	4 x VoIP FXS	1 x GEPON (SC PX)
AT-iMG646MOD	6 x 10/100TX 1 x HPNAv3 coax F connector 2 x T1/E1	4 x VoIP FXS	1 x 100FX (SC BX) 1 x GEPON (SC PX)
AT-iBG915FX	5 x 10/100TX	8 x FXS	100Mbps SFP WAN

Accessories to Fiber iMG Family

Faceplate	
AT-iMG001	Fiber outlet wallplate (LH, BD versions) with locking mechanism

ADSL iMG / iBG			
Model	**LAN**	**Telephony**	**WAN**
AT-iMG624A	4 x 10/100TX	n/a	1 x ADSL annex A (RJ-11)
AT-iMG624B	4 x 10/100TX		1 x ADSL annex B (RJ-45)
AT-iMG634A	4 x 10/100TX	2 x VoIP FXS	1 x ADSL annex A (RJ-11)
AT-iMG634B	4 x 10/100TX	2 x VoIP FXS	1 x ADSL annex B (RJ-45)
AT-iMG634WA	4 x 10/100TX 1 x IEEE 802.11bg wireless	2 x VoIP FXS Inc 1 x FXO for baseband voice lifeline	1 x ADSL annex A (RJ-11)
AT-iMG634WB	4 x 10/100TX 1 x IEEE 802.11bg wireless	2 x VoIP FXS + PSTN Inc 1 x FXO for baseband voice lifeline	1 x ADSL annex B (RJ-45)
AT-iMG664A	4 x 10/100TX	2 x VoIP FXS, 1 x ISDN BRI	1 x ADSL annex A (RJ-11)
AT-iMG664B	4 x 10/100TX	2 x VoIP FXS, 1 x ISDN BRI	1 x ADSL annex B (RJ-45)
AT-iMG664WA	4 x 10/100TX 1 x IEEE 802.11bg wireless	2 x VoIP FXS, 1 x ISDN BRI	1 x ADSL annex A (RJ-11)
AT-iMG664WB	4 x 10/100TX 1 x IEEE 802.11bg wireless	2 x VoIP FXS, 1 x ISDN BRI	1 x ADSL annex B (RJ-45)
AT-iBG910A	8 x 10/100TX	2 x VoIP FXS, 2 x ISDN BRI	1 x ADSL2+ annex A
AT-iBG910B	8 x 10/100TX	2 x VoIP FXS, 2 x ISDN BRI	1 x ADSL2+ annex B

Baseband Splitters are available. Please contact your local Allied Telesis representative office for further details.

Network Management	
Model	**Description**
AT-TN-NMS-R10-S	Software, two CD set, NMS rel 9.0, single server (eval only, requires license key)
AT-TN-NMS-R10-D	Software, three CD set, NMS rel 9.0, distributed server (eval only, requires license key)
AT-TN-NMS-SK	License key, NMS single server
AT-TN-NMS-DK	License key, NMS distributed server
AT-TN-NMS-UK	License key, NMS single-to-distributed server upgrade
AT-TN-NMS-5K-UK	License key, NMS 5000 node upgrade
AT-TN-NMS-WK	License key, warm standby support
AT-TN-NMS-NK	License key, northbound Web services interface (SOAP/XML)

Power Supply Information

The AT-iMG646xx-ON and AT-iMG646MOD, for outdoor deployment requires a separate 12V power supply (not supplied). Please contact Allied Telesis for further information. All other AT-iMG products ship with an external power transformer or power cable. For country specific ordering please use the following suffixes:

- -00 = No power supply
- -10 = USA power supply
- -30 = UK power supply
- -50 = EU power supply (excluding UK)

Accessories to Entire iMG 600 Family	
Battery Backup Units	
AT-iMG006G	Delta grounded battery backup (indoor) - for RG/iMG series (requires relevant battery backup cable).
AT-RG006	Battery backup cable - 8ft / 2.4m. Single-end connectorized - 9 pin mini DIN male for connection with AT-RG223, RG6x3 series. Requires 7 pin terminal block to connect with battery backup unit.
AT-RG007	Battery backup cable - 3ft / 90cm. Dual-end terminated - 9 pin mini DIN male for connection with RG6x3 series and 7 pin terminal block to connect with battery backup unit.
AT-RG008	Battery backup cable - 3ft / 90cm. Dual-end terminated - 4 pin locking power plug for connection with iMG6x6 series and 7 pin terminal block to connect with battery backup unit.
AT-RG009	Battery backup cable - 3ft / 90cm. Dual-end terminated - 6 pin modular (RJ-11 offset tab) for connection with AT-iMG616RF, AT-RG613xxv2, AT-RG634A and AT-RG624v2 and 7 pin terminal block to connect with battery backup unit.
AT-RG013	Battery backup cable - 15 ft / 4.5m. Dual-end connectorized - 6 pin terminal block for connection with iMG646xx-ON series units. 7 pin terminal block to connect with battery backup unit. UV rated for outdoor deployment.
AT-iMG646MOD-C01	Battery backup cable - 15 ft / 4.5m. Dual-end connectorized - 18AWG cable for connection with iMG6x6MOD series units. 7 pin terminal block to connect with battery backup unit. UV rated for outdoor deployment.
Configuration Cable	
AT-RGCONSOLECABLE-00	Console cable for local RG/iMG configuration - 6.5 ft / 2m. 8 pin male mini DIN for connection with RG/iMG and 9 pin female serial connector for PC.
Enclosures	
AT-EN646	Environmental enclosure for iMG646xx-ON series.
AT-EN646MOD	Environmental enclosure for AT-iMG646MOD.

Related Products

Allied Telesis International also manufactures a range of integrated Multiservice Access Platform (iMAP) solutions. These platforms are used to aggregate connections to homes or businesses. For detailed information regarding these products please refer to the Allied Telesis 'Guide to iMAP'.

Allied Telesis International manufactures one of the broadest ranges of IP Ethernet networking products on the global market today. Please refer to our 'Product Catalog' for further information on our multi-layer Ethernet switches, routers, wireless (IEEE 802.11a/b/g) access points, media converters, optical networking products and network management software.

Working Together

By working with Allied Telesis and its technology partners, operators can optimize their business models to reduce capital and operational expenditure, reach profitability quicker and retain loyal and existing customers.

Allied Telesis has the expertise and knowledge to enhance your business offering and grow your profits with IP Triple Play.

Make Allied Telesis your IP Triple Play choice!

For further information on our IP Triple Play solution, please refer to the 'IP Triple Play Solutions Guide' and 'Guide to iMAP' produced by Allied Telesis.

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